

# 双向铣头 (BT50-BT50)

## Two Way Angle Milling Head



**使用说明书**  
**Operating Manual**

- RPM: 2500
- 立式 / Vertical
- 卧式 / Horizontal

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# 一. 90度直角铣头机械特性

## Characteristics of right-angle milling heads

前言：本设备依厂家使用应用区分为立式与卧式用，内部结构均相同，惟使用添加的润滑油依应用型式不同而有所差异，使用时敬请依操作说明书要旨并遵循。

Foreword: The equipment is divided into vertical and horizontal with the same internal structure, but using the Add oil vary according to the application type, used in accordance with operating instructions.

本直角铣头之特性如下 Specification of angular head as below:

(1) 经济化改变机械立式铣削工作，使一机多用途之直角铣头。

Angular head is very easy let vertical milling head change to horizontal.

(2) 本直角铣头小巧玲珑，操作自如，适合复杂机件之加工。

It's compact, smaller, and easy to operation.

(3) 加装刻度盘即可做360° 调整角度选择铣刀铣向。

The connector is used for adjusting the direction of angular head.

(4) 加装半自动刻度盘即可做角度调整(每15° or 5°) 不须再校正主轴角度。

We also supply manual or auto index connector to save time when adjusting angular head direction.

(5) 适合槽孔内部之搪铣，端面整修，斜面倒角等加工工作。

It's easy used for boring, face milling, and angular face cutting.

(6) 主轴及齿轮采用铬钼合金钢并经特殊渗碳热处理可确保坚固耐用。

Spindle and gear used special alloy steel to ensure quality.

(7) 轴承采用滚珠轴承，适合高转速轻切削。

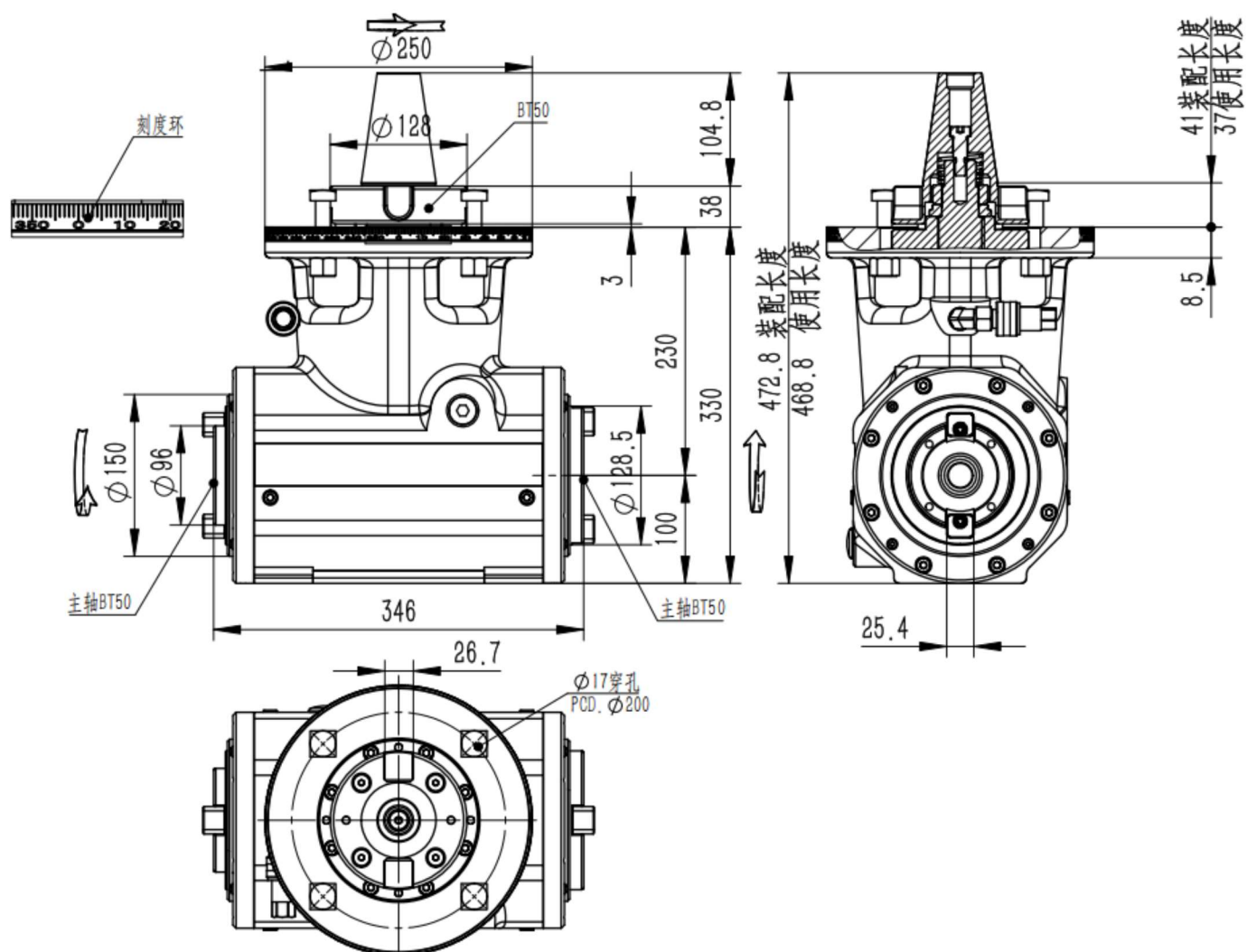
Used angular ball bearing for high speed light cutting

(8) 刀柄可用NT或BT(必须将抓头拆除)，订购时可指定交货时附上适用之刀柄拉杆。

Drive shank is NT or BT please select one of each

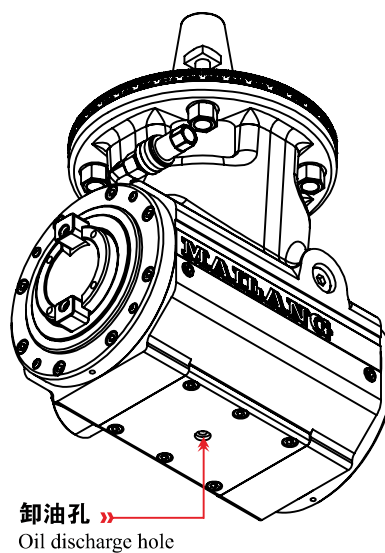
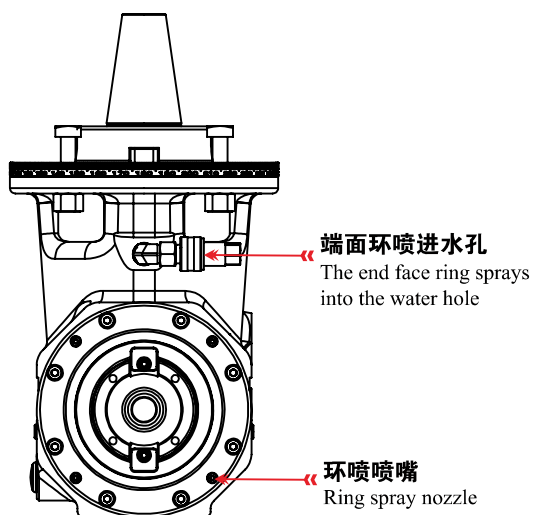
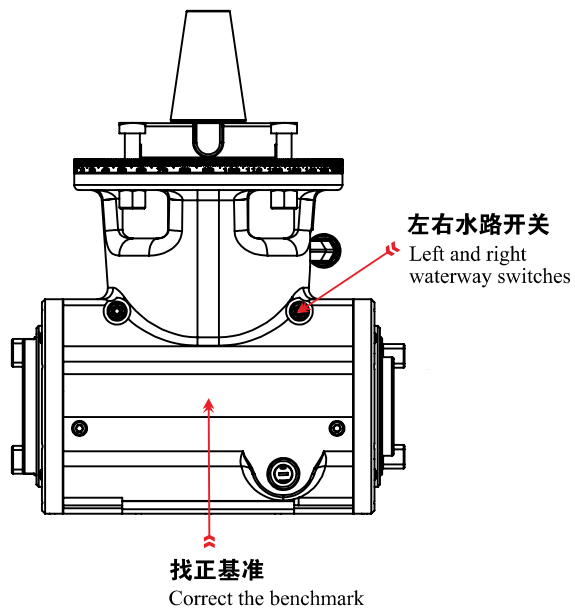
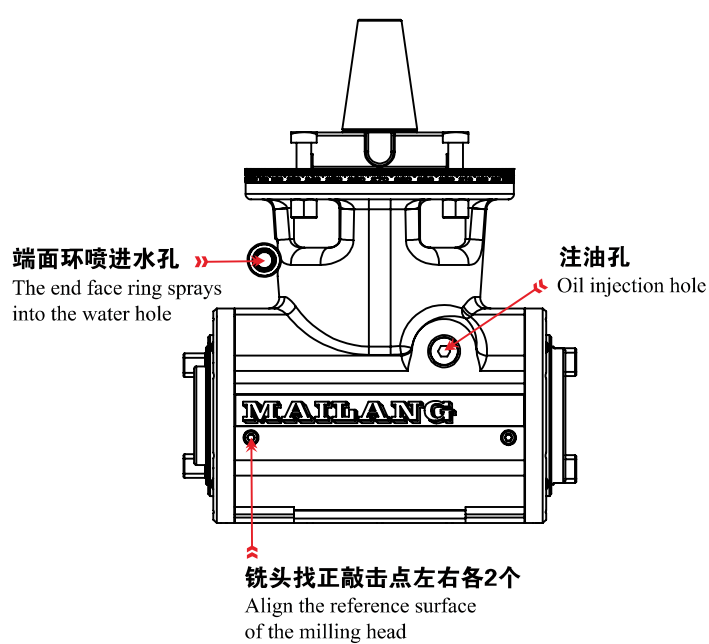
# 外型尺寸

## Outside Dimensions



# 铣头平面图

Milling head floor plan



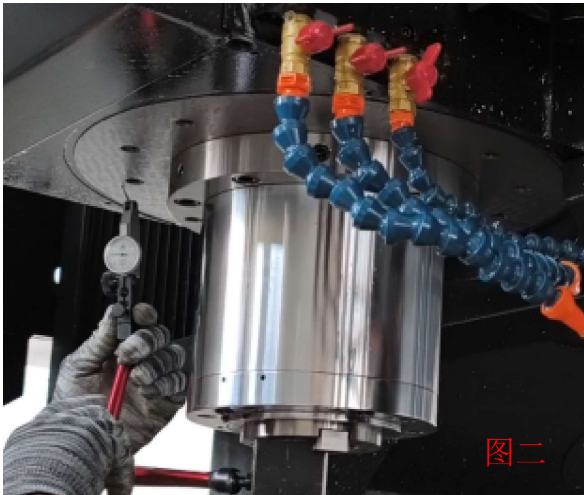
### 三 安装步骤

1. 图一 / As shown in the figure 1  
安装前清洁主轴与法兰连接表面的油泥与污质.

Before installation, clean the oil sludge and other contaminants on the connection surface between the main shaft and the flanged plate first



2. 图二 / As shown in the figure 2  
测量法兰盘与主轴连接面的平整度.  
Measure the flatness of the connection surface between the flange and the main shaft.



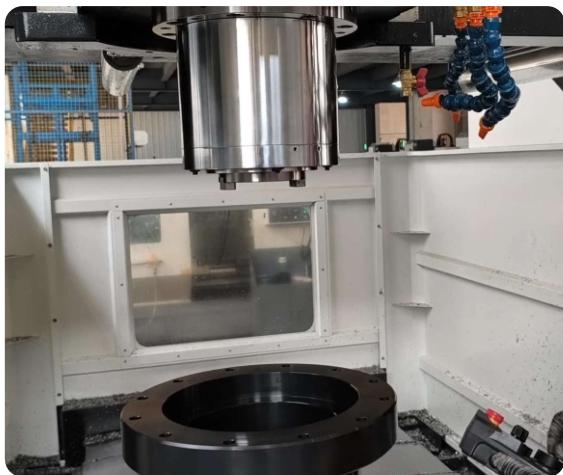
3. 图三 / As shown in the figure 3  
安装法兰前，先清洁法兰盘各接触面.  
Before preparing to install the flange, clean all contact surfaces of the flange plate first.



4. 图四 / As shown in the figure 4  
将机床调到手动模式.  
Switch the machine tool to manual mode.

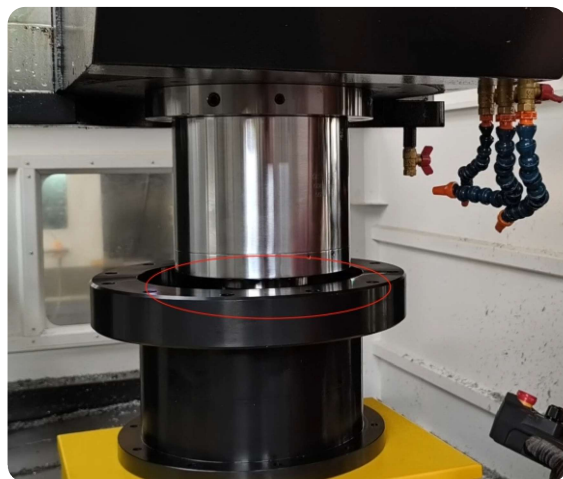






### 5. 移动主轴到法兰盘的上方

Move the main shaft above the flanged



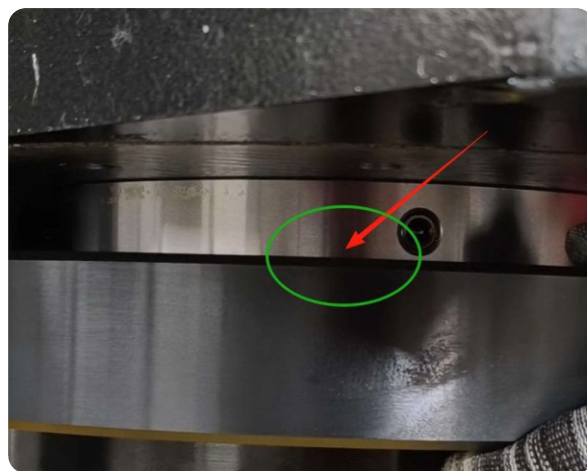
### 6. 手柄移动主轴至法兰中心位置后安装

Move the main shaft above the flanged



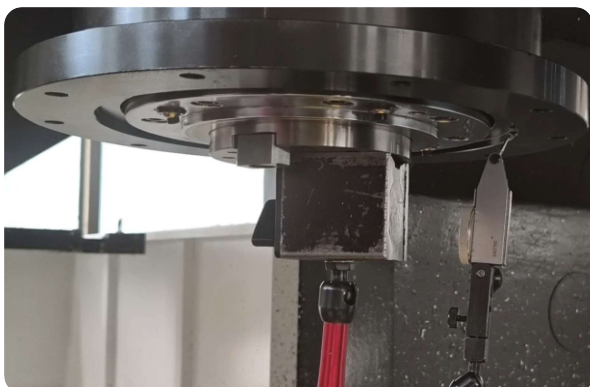
### 7. 注意：主轴与法兰盘必须对孔后才能安装

Note: The main shaft and the flange plate must be installed with the holes aligned



### 8. 主轴台阶入位后，尚可手动旋转法兰

After the main shaft step is in place, make sure that the flanged can still be manually rotated



### 9. 校正法兰盘与主轴的同心度

Correct the concentricity of the main shaft and the flanged



### 10. 校正同心度时可用橡胶锤辅助调整

When correcting concentricity, a rubber hammer can be used to assist in the adjustment



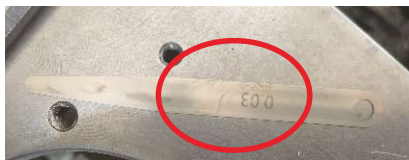
### 11. 校正法兰盘与主轴的平行度

Correct the parallelism between the flanged and the main shaft

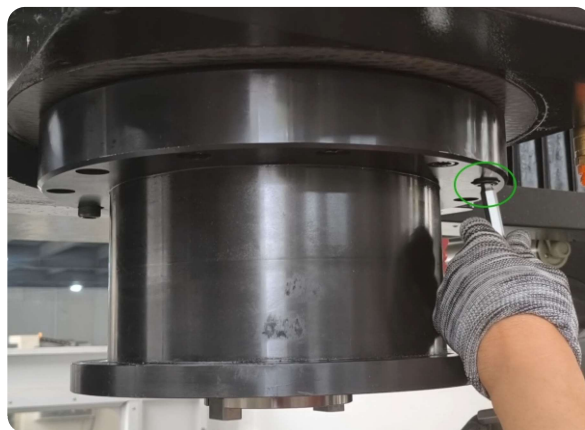


### 12. 如果法兰盘与主轴端面接触不平时，可使用专用塞尺垫高矮面

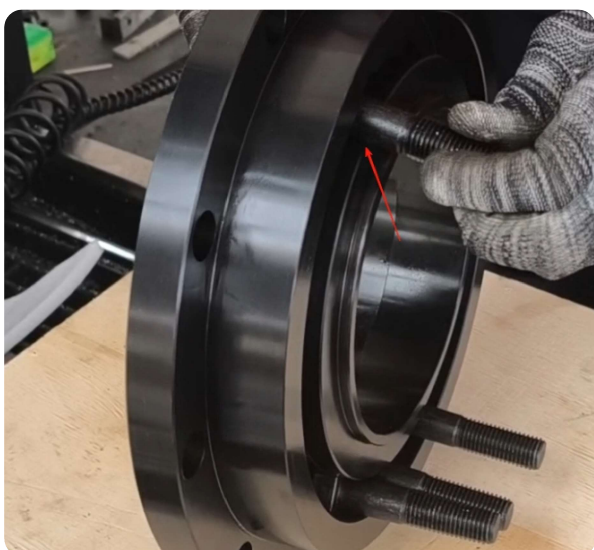
If the flange plate is not in contact with the end face of the main shaft, A special height-increasing ruler can be used to raise the height of the surface



13. 在此处加入塞尺以增加矮面一端的高度  
Add a height gauge here to increase the height



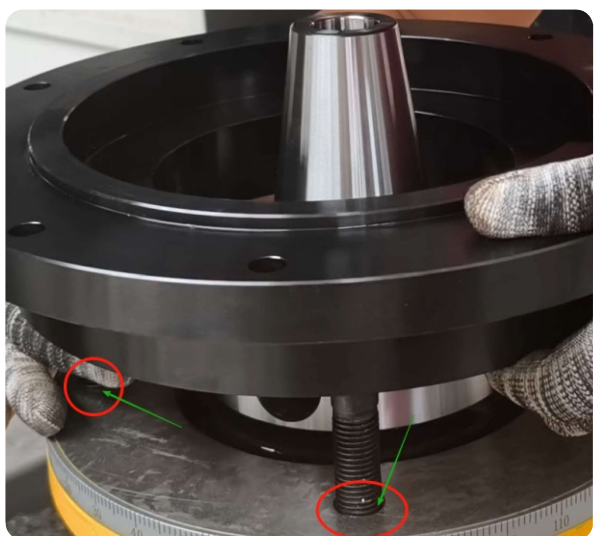
14. 校正完同心度与平行度后，锁紧法兰盘上的连接螺丝  
After correcting the concentricity and parallelism, tighten the connecting screws on the flanged



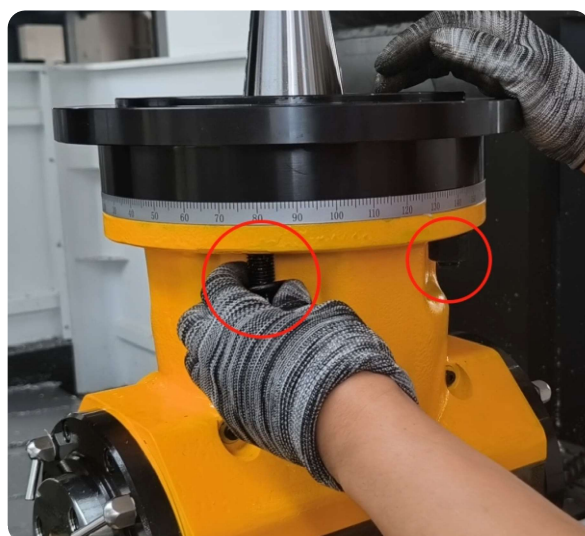
15. 清洁下法兰，安装上四颗连接侧铣头的螺丝  
After cleaning the lower flange, install the four screw ratios that connect the side milling heads



16. 清洁侧铣头表面  
Clean the surface of the side milling head

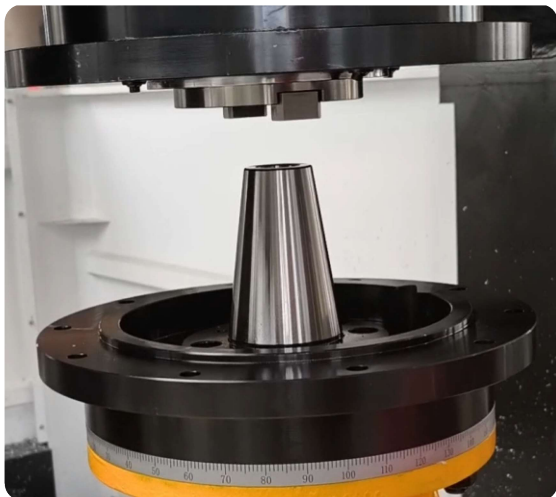


17. 将下法兰的四颗螺丝对正侧铣头孔位  
Align the four screws of the lower flange with the holes of the side milling head



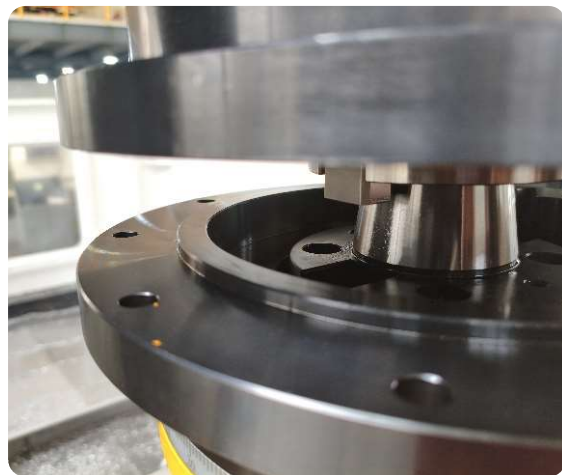
18. 下法兰安装好后，锁上连接螺丝，不用锁紧  
After the lower flange is installed, lock the connecting screws. There is no need to tighten them





### 19. 手柄移动主轴慢慢靠近角度头刀柄

The handle moves the main shaft slowly towards the Angle head handle



### 20. **注意：**侧铣头与主轴安装时必须①和②上下对齐

Note: When installing the side milling head and the spindle, the ① and ② sections must be aligned up and down



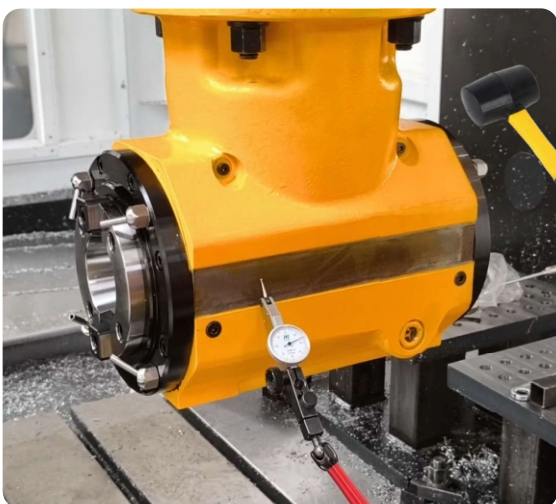
### 21. 在上下法兰闭合后，手动旋转一下角度头的输出轴，检测是否有干涉

After the upper and lower flanges are closed, manually rotate the output shaft of the Angle head to check for any interference



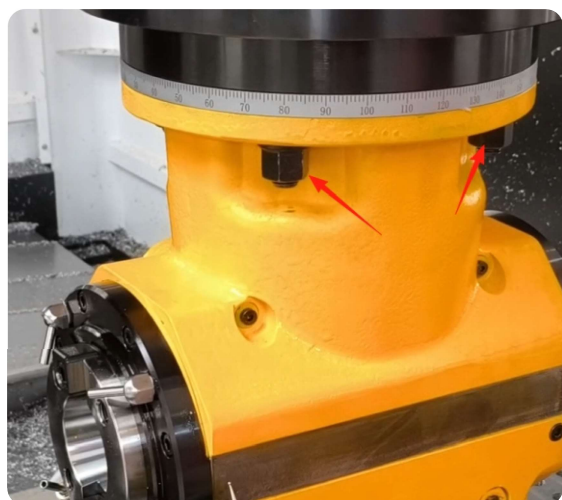
### 22. 确定无干涉后，锁紧下法兰连接螺丝

After confirming there is no interference, tighten the connection screws of the lower flanged



### 23. 打表校正侧铣头垂直度，可借助橡胶锤辅助校正

To correct the verticality of the side milling head, a rubber hammer can be used for auxiliary correction



### 24. 校正完侧铣头垂直度后，锁紧四颗连接螺丝

After correcting the verticality of the side milling head, tighten the four connecting screws



完装完后成品效果图  
The effect picture after installation



## 四 . 注意事项Cautions

### < 立式 Vertical >

1. 此一直角铣头自交货日起超过三个月未使用，或经过使用后曾停顿三个月(以上)未再使用者，在此情况下，为了润滑主轴精密轴承及齿轮，请依下列方法保养：

If angular head un-use over 3 month please follow the procedure to Lub.gear and bearing again as below :

- (1) 在与铣头结合前，请先利用板手旋转主轴五次以上，使主轴轴承润滑。

Rotate spindle over 5 times manual ly for re-lub.Sp.bearing.

- (2) 并于『每次使用前』先检视油量，必要时请再增补高凝度牛油。

Check oil level before using.If necessary add a high degree of condensate grease.

- (3) 牛油过量会影响机台温升；牛油不足将会影响齿轮寿命。故请保持适量油量。

Grease overdose will affect the temperature rise of the machine;grease will affect the life of gear.So please keep the right amount of grease

- (4) 于运转过程中间打开加油盖检视是否有油在循环，连续运转时间建议于2小时以内。

Check oil circulates or not when Sp.rotation.Continuous operation time is recominended in less than two hours.

1. 此直角铣头之减速比1:1。

Gear rate is 1:1.

2. 本直角铣头配合设计需要，分为立式及卧式，若为立式头，必须直立使用及存放。

Keep angular head vertical stand if it's a vertical head when in stockpile.

### < 卧式 Horizontal >

3. 此一直角铣头自交货日起超过三个月未使用，或经过使用后曾停顿三个月(以上)未再使用者，在此情况下，为了润滑主轴精密轴承及齿轮，请依下列方法保养：

If angular head un-use over 3 month please follow the procedure to Lub.gear and bearing again as below :

- (5) 在与铣头结合前，请先利用板手旋转主轴五次以上，使主轴轴承润滑。

Rotate spindle over 5 times manual ly for re-lub.Sp.bearing.



- (6) 并于『每次使用前』先检视油量，必要时请再增补高凝度牛油。

Check oil level before using.If necessary add a high degree of condensate grease.

- (7)牛油过量会影响机台温升；牛油不足将会影响齿轮寿命。故请保持适量油量。

Grease overdose will affect the temperature rise of the machine;grease will affect the life of gear.So please keep the right amount of grease.

- (8)于运转过程中间打开加油盖检视是否有油在循环，连续运转时间建议于2小时以内。

Check oil circulates or not when Sp.rotation.Continuous operation time is recominended in less than two hours.

4. 此直角铣头之减速比1:1。

Gear rate is 1:1.

5. 本直角铣头配合设计需要，分为立式及卧式，若为立式头，必须直立使用及存放。

Keep angular head vertical stand if it's a vertical head when in stockpile.

## 五. 主轴轴承的调整 Adj.Spindle Bearing

如发现主轴松动或顿刀，表示主轴轴承已松驰须作主轴之调整。

If spindle vibration or loose please check sp.bearing.

注：拆后盖及下盖前须备妥容器盛油。

**NOTE** :Please prepare oil tank before takeoff rear or front cover.

1. 打开主轴后盖及下盖，

Take off rear and button cover as drawing.

2. 放松及固定螺丝。

Loose and lock screw.

3. 将锁紧螺帽放松，注意旋向，此段为左牙。

Loose lock nut,it is left thread.

4. 将锁紧螺帽锁紧，注意旋向，此段为右牙。

Tight lock nut,it is right thread.

5. 将锁紧螺帽锁紧。

Tight lock nut.



6. 测试旋转主轴不可过紧或过松，主轴过紧会造成轴承发热、影响功率、甚至损坏等。

Rotate spindle manually don't too tight or loose,if too tight sp. will over heat.

7. 调整适中后，固定螺丝锁紧。

8. 装回后盖及下盖，并依使用规范的润滑油或黄油添加至正确油位。

Put rear and bottom cover back.Add oil or butter and in accordance with the specification to the correct oil level

## 六 • 润滑油Lubrication

### 〈立式 Vertical〉

1. 本直角铁头采用” IS068”，增补润滑机油亦请使用此一规格，或同性质之润滑机油。

Lub.Oil is“IS068”or same quality oil as like IS068.

2. 在正常使用情况下，每次使用前须检视油位油量，油量减少时每次打至油镜之油位中心点处，但请勿超过。

Re-fill oil until oil level align to Red Line,don't over Red Line means too much.

3. 在正常使用情况下，每使用3个月或250-300小时需更换齿轮传动部份润滑油加油孔位置如(1), 由卸油孔L(2) 打开卸油螺丝卸油，换新润滑油(添加量约为200c.c)。

Replace Lub.Oil,please take off plug from oil leak hole to move out the Lub. oil which indicate as drawing below(The add about 200c.c)

Oil leak hole

### V 卧式 Horizontal

1. 本直角钝头采用耐温黄油#2, 增补润滑油亦请使用此一规格，或同性质之润滑油。

The angle head uses temperature grease #2,the addition of lubricants also use this specification or with the nature of lubrication grease.

2. 本设备于出厂前均予添加定量耐温黄油，若油量减少时请适量增补。The angle head are adding quantitative temperature grease before shipping,if oil reduced,

supplement the amount of same specification butter.

3. 在正常使用情况下，每使用3个月或500-600小时需确认齿轮传动部份润滑油脂，请将底封盖卸下确认油量更新或增补之。

Under normal use, every three months or 500-600 hours to be confirmed gear transmission part of the grease, place the bottom cover off to confirm the amount of oil to update or supplement it.

## 七. 直角铣头的结合 Connect the Angular Head to M/C

1. 将刻度盘拆下(附刻度盘型式), 接触面擦拭干净。  
Take off the connector and cleaning surface of flange.
2. 将刻度盘装于铣头上, 注意归零位置。  
Lock connector on milling head please watch alignment mark.
3. 试旋转直角铣头主轴五次以上, 使齿轮轴承均沾有润滑油。  
Rotate spindle over 5 times manually for re-lub bearing and gear.
4. 将直角铣头固定于刻度盘上, 锁紧T型螺丝及螺帽。  
Lock angular head on connector by T bolt and lock nut.
5. 精度校正: 利用百分表测试直角铣头主轴端面及径向, 以测试棒检验直角铣头精度及机身精度。  
Put test bar into spindle to check s.p run out and adjusting angular head parallelism with axis of M/C

## 八. 直角铣头的使用 Operation

本直角铣头使用刀直径 200mm(8"), 进刀量及速度等限制如下表:

Select max.cutter dia<sup>></sup> 200mm. Cutting condition limit table as below :

切削材料 Cutting material	进刀深度(mm) Deep	进刀速度(mm/min) Feed	90° 头转速(rpm) Spindle speed
钢铁硬材 Hard steel	2-3	60-90	90
铜铸铁软材Casting iron soft material	3-4	90-120	20